NEW *METALLIZED* PROGRAM PAPER AND *"HOT-TIP"* STYLUS

CUTS PROGRAM CHART DRAWING TIME, INCREASES ACCURACY

Exclusive Research, Incorporated metallized program paper† is now available for use with all models of DATA-TRAK® programmers and PREKORDER™* programmer recorders. Programs for these electrostatic curve-following instruments are prepared quickly and easily by simply "drawing" desired curves on the metallized surface of the new program paper with a Hot-Tip Stylus. Other advantages of the new metallized paper include optimum program accuracy and permanency.

†Metallized mylar for even greater durability is also available.

FAST PROGRAM PREPARATION

The speed and ease of preparation enables programs to be placed in operation just minutes after coordinate curve-data has been established. A program is prepared with the aid of standard drafting triangles and curves, and a Hot-Tip Stylus. The stylus removes a fine line of metal from along the desired program curve, exposing sharply contrasting red backing-paper which permits easy visual inspection of curve quality.

No technical skill or experience is required — just place the metallized chart paper on a clean, smooth surface and draw program curve with the new Hot-Tip Stylus, just as you would with an ordinary lead pencil.

PHOTO SHOWS MODEL ES3075 STYLUS AND METALLIZED PAPER SEE TABLE OTHER SIDE FOR MODEL NUMBERS AND DESCRIPTIONS.

EXCELLENT FOLLOW ACCURACY

To follow a program curve, a DATA-TRAK® or PREKORDER* probe must detect a signal voltage which indicates its displacement from the center of the curve, and transmit it to servo circuits which effect proper correction. The width of a program curve is a prime factor in determining the width of the proportionl-band-of-control of either of these instruments. Since curves can be readily drawn to less than .010 of an inch wide on the metallized paper with the Hot-Tip Stylus, a very tight band of control is established, providing optimum curve-following accuracy.

PERMANENT PROGRAM

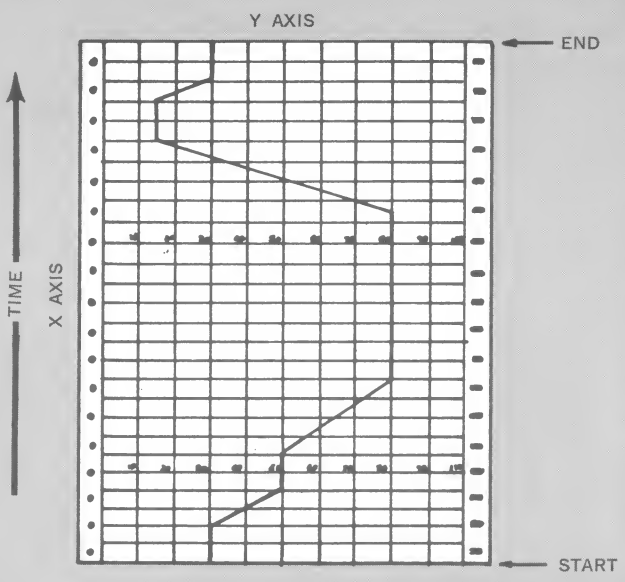
Since the curve-following probe of all DATA-TRAK® and PREKORDER* models does not directly contact the metallized paper, chart wear is minimized, enabling programs to be stored and re-used indefinitely.

*Trade Marks of Research, Incorporated, Minneapolis, Minn.

PROGRAM COORDINATES

The metallized program paper is scaled to provide reference lines for both X and Y coordinates. The Y axis of all charts represents the specific range of variability of a selected parameter (load, displacement, temperature, etc.); the X axis of the charts represents time, and is scaled as noted in the table below.

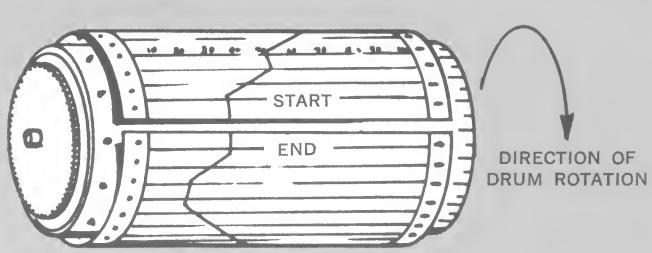
PLOTTING PROGRAM



The program must be plotted in a manner which initiates and terminates the curve at identical levels on the Y axis of the chart if continuous drum rotation is anticipated.

Programs may be corrected by filling in undesired portions of a curve with a soft graphite pencil, and then redrawing the curve with a Hot-Tip stylus.

MOUNTING CHART



The chart must be wrapped around the outer surface of the program drum with its opposite ends meeting to form a butt-joint, which is then taped together to secure the chart in position.

Instruments utilizing punched metallized paper are equipped with locating pins (sprockets) to assure precise alignment of program chart on drum. Other instruments have scribed index lines on their drums with which the index lines on the chart must be matched to effect proper alignment.

METALLIZED-PAPER TYPES and SPECIFICATIONS

Number and Type	For Use With DATA-TRAK® Model	Stock Size	Program Area	Linear Scale Divisions • Y Axis	Linear Scale Divisions • X Axis
MSR35-1010 unpunched	FGE 5035	8½″ x 11″ sheets	7″ x 10″	100	200
MCR48-1010 unpunched	FGE 5048	8½″ x 13⅛″ sheets	7″ x 12⅝″	100	200
MMCR10-R5000 punched† MYLAR**	FGE 5110	12¼″ x 50′ rolls	11″ x 13½″	100	27*

With DATA-TRAK® equipped with strip-chart adaptor, programs up to 20 feet in length may be utilized (see Data Sheet number 502.15).

• Other scales available by special request.

†May also be used on Model 5052S PREKORDER* and Model FGE5124 STATA-TRAK.*

**DuPont Trademark for its polyester film.

**Use Program Stylus PS 53 with Metallized Mylar

To order HOT TIP STYLUS, specify part no. ES3075

To order PROGRAM STYLUS for metallized Mylar, specify part number PS 53.

*Trade Marks of Research, Incorporated, Minneapolis, Minn.

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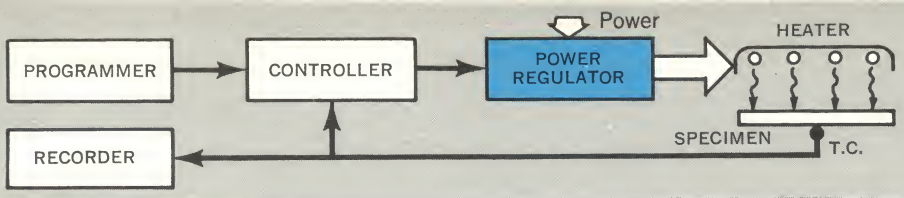


SOLID STATE POWER CONTROLLERS

LABAC SCR CONTROLLER

Smooth, complete control of a-c power to 4.6 kva†

SOLID STATE LABAC™*

This completely solid state device uses silicon control rectifiers (SCRs) pulsed by a magnetic amplifier for automatic or manual control of a-c power.

LABAC* is a compact, lightweight, inexpensive replacement for bulky, heavy, saturable-core reactors, thyratrons, and motor-driven variable transformers.

CHECK THESE LABAC* FEATURES:

- Much less expensive than conventional power-control devices.
- Capacity up to 4600 watts.†
- Compact and lightweight—5″x6″x9½″.
- Fast response—within 1 cycle of line frequency.
- Smoothly variable output from zero to full power.
- Manual or automatic control by 0-1 ma. signal.
- Other standard control currents accommodated through use of external resistor.
- Isolated 200 ohm control input.
- Operates from power line frequency of 60 cps.
- Easy to install—complete with line cord, signal jacks and load receptacle.
- Can be conveniently panel mounted.

Multiple installations can increase power capacity in three-phase applications. Custom models can provide more capacity or different control parameters.

APPLICATIONS: Proportional control of power in electric furnaces, ovens and kilns; process controls of many kinds; replacement of power relays and mechanical contactors in on-off power control; theater and display light dimming; speed control of universal motors; many laboratory applications.

†Single and three-phase models available with capacities up to 226 KVA, a-c or d-c.

*Labac is a Trademark of Research, Inc., Minneapolis, Minn.

Turn page for specs

VERSATILE LABAC* HAS MANY APPLICATIONS

Smoothly variable control over the entire rated power range gives Labac* many applications. It can be used with temperature controllers for proportional or on-off control of power to industrial electric ovens and furnaces. It is an excellent speed controller for universal electric motors. It provides smooth dimming control of stage or commercial lighting, with the added advantage of easy remote control using light wiring. It is a convenient, portable plug-in unit for laboratory use with ovens and temperature controllers. Used as an off-on power controller to replace mechanical contactors and power relays, Labac* can be switched to full power by 1 ma. control current.

SPECIFICATIONS:

Size: 5″ x 6″ x 9½″; 7½ lbs.

Capacity: 10 or 20 amps, depending on model. Up to 4.6 kva.†

Input (line): 115 or 230 v. a-c.

Output: Smoothly variable from 0 to line voltage; a-c wave form modified as shown in drawings on this page.

Control input impedance: Nominal 200 ohms, isolated.

Response to step signal: Within one cycle of 60 cycle line frequency.

Manual control: Directly by large, graduated knob on top of unit, or remotely with 0-1 ma. signal.

Control current: 0-1 ma. (see curve at right). Easily modified for other standard control signals by use of external or internal resistors.

Control current bias: Manual dial can be used to bias control signal (see curves at right).

Control source impedance: 3,000 ohms or higher—lower source impedances reduce response slightly.

Power gain: In excess of 20 million (1 ma./200 ohms to 4.6 kva).

Power factor: 1.0.

Ambient temperature: Up to 100° F. for full rated power. Forced convection cooling base available for operation in higher ambients. Higher ambient temperatures reduce capacity.

Fuse: Protection against short circuits in load.

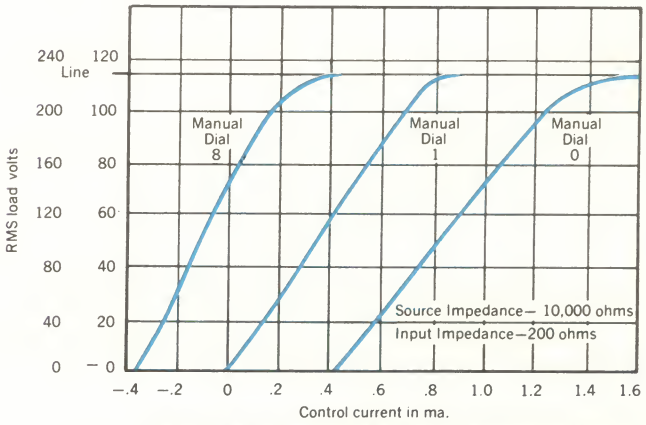
HOW TO ORDER: Specify model number for any standard Labac*, and any optional features desired. For custom models write for quotation, listing special parameters.

OPTIONS AND ACCESSORIES:

Fan Base: For high ambient-temperature or short-term overload. Adds 2 inches to overall height.

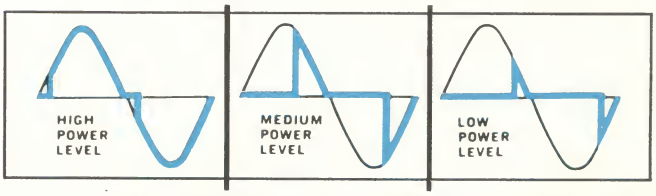
3-Channel Mounting Panel: To mount three LABAC's* horizontally.

ELECTRIC FURNACES, OVENS • STAGE, DISPLAY LIGHTING • PROCESS CONTROL



Control current vs. load voltage as a function of manual dial setting

0-1 ma. signal precisely proportions the voltage to the load from zero to full line voltage.



Labac* proportions the voltage across the load by varying the "firing angle" (or instant of time during each half of the a-c cycle when current starts to flow through an SCR). This regulates power from maximum at zero firing angle to shut-off at 180°.

MODEL NUMBER	LINE VOLTAGE	CAPACITY (AMPS.)	CAPACITY (KVA.)
Labac*			
10-1	115	10	1.15
20-1	115	20	2.3
10-12	115/230	10	2.3
20-12	115/230	20	4.6

One of the lowest cost SCR variable-power controllers available. Contact your nearest R-I CONTROLS sales representative or write directly for price- and discount-schedule information.

†Three-phase models available with capacities up to 226 KVA.

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